

=> FILE REG

FILE 'REGISTRY' ENTERED AT 13:48:32 ON 31 OCT 2006
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FILE 'LREGISTRY' ENTERED AT 11:52:58 ON 31 OCT 2006

L1 STR
L2 STR

FILE 'REGISTRY' ENTERED AT 11:57:12 ON 31 OCT 2006

L3 50 S L1 OR L2
L4 SCR 2043
L5 50 S (L1 OR L2) NOT L4
L6 STR L1
L7 STR L2
L8 50 S (L6 OR L7) NOT L4
L9 2501 S (L6 OR L7) NOT L4 FUL
SAV L9 WEI969/A
E VINYLETHYLENE CARBONATE/CN
L10 1 S E3
E VINYLENE CARBONATE/CN
L11 1 S E3
E SILICON/CN
L12 1 S E3
E TIN/CN
L13 1 S E3
L14 383491 S SI/ELS AND AYS/CI
L15 59726 S SN/ELS AND AYS/CI

FILE 'HCA' ENTERED AT 12:06:59 ON 31 OCT 2006

L16 2556 S L9
L17 185 S L10
L18 952 S L11
L19 2863 S (L12 OR SILICON OR SI) (2A) (ANOD## OR (NEG# OR NEGATIV?))
L20 3383 S (L13 OR TIN OR SN) (2A) (ANOD## OR (NEG# OR NEGATIV?)) (A)E
L21 227886 S BATTERY OR BATTERIES OR (ELECTROCHEM? OR ELECTROLY? OR
L22 670 S L21 AND L16
L23 17 S L22 AND L19
L24 11 S L22 AND L20
L25 132 S L21 AND L17
L26 594 S L21 AND L18
L27 2 S L25 AND L19
L28 5 S L25 AND L20
L29 17 S L26 AND L19

L30 10 S L26 AND L20

FILE 'REGISTRY' ENTERED AT 13:20:44 ON 31 OCT 2006

L31 383491 S L14 OR L14
L32 193491 S L31 RAN=(,165812-28-2)
L33 190000 S L31 RAN=(165812-29-3,)

FILE 'HCA' ENTERED AT 13:22:26 ON 31 OCT 2006

L34 1592 S L15(L) (ANOD## OR (NEG# OR NEGATIV?) (A)ELECTROD##)
L35 4636 S (L32 OR L33) (L) (ANOD## OR (NEG# OR NEGATIV?) (A)ELECTROD
L36 8 S L21 AND (L16 OR L17 OR L18) AND L34
L37 5 S L21 AND (L16 OR L17 OR L18) AND L35
L38 13 S L27 OR L28 OR L36 OR L37
L39 4 S (L24 OR L30) NOT L38
L40 17 S L27 OR L28 OR L36 OR L37 OR L24 OR L30
L41 10 S (L23 OR L29) NOT L40
L42 9 S L40 AND 1840-2003/PRY,PY
L43 7 S L41 AND 1840-2003/PRY,PY

=> FILE HCA

FILE 'HCA' ENTERED AT 13:48:51 ON 31 OCT 2006

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=> D L42 1-9 CBIB ABS HITSTR HITIND

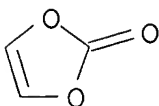
L42 ANSWER 1 OF 9 HCA COPYRIGHT 2006 ACS on STN

143:81122 lithium secondary **battery**. Miyachi, Mariko; Utsugi,
Koji; Kusachi, Yuki; Yamamoto, Hironori (NEC Corporation, Japan).
PCT Int. Appl. WO 2005057715 A1 20050623, 95 pp. DESIGNATED STATES:
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ,
CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IS, IT,
LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Japanese). CODEN:
PIXXD2. APPLICATION: WO 2004-JP18715 20041215. PRIORITY: JP
2003-416516 20031215; JP 2004-317298 20041029; JP 2004-317280
20041029.

AB The present invention aims to provide a lithium secondary
battery with excellent characteristics such as energy d. and

emf., which is also excellent in cycle life and shelf life stability. Disclosed is a secondary **battery** comprising at least a pos. electrode, a neg. electrode and an electrolyte soln. wherein the neg. electrode contains a metal, metalloid or oxide, which adsorbs/desorbs an alkali metal or alk. earth metal, and a carbon material as the neg. electrode active material, and the electrolyte soln. contains a non-protonic solvent wherein at least an electrolyte is dissolved and a chain disulfone compd.

IT **872-36-6**, Vinylene carbonate
 (additives for lithium non-aq. electrolyte soln.)
 RN 872-36-6 HCA
 CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



IT **7440-31-5, Tin**, uses
 (anode active substance for lithium secondary
batteries)
 RN 7440-31-5 HCA
 CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M010-40
 ICS H01M004-02; H01M004-38; H01M004-48; H01M004-58
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST lithium secondary **battery** anode active substance
 electrolyte additive disulfone
 IT **Battery** anodes
 (anode active substances for)
 IT Secondary **batteries**
 (lithium; additives for)
 IT **Battery** electrolytes
 (nonaq.; disulfone additives for)
 IT **872-36-6**, Vinylene carbonate 1120-71-4, Propane sultone
 2997-54-8 6330-39-8 22063-27-0 22063-28-1 23601-06-1
 99591-74-9 152949-20-7 500878-47-7 855472-38-7 855472-43-4
 855472-46-7
 (additives for lithium non-aq. electrolyte soln.)
 IT 1303-86-2, Boron oxide (B2O3), uses 1309-37-1, Ferric oxide, uses
 1314-56-3, Phosphorus oxide (P2O5), uses 7429-90-5, Aluminum, uses
 7439-89-6, Iron, uses 7439-92-1, Lead, uses 7440-02-0, Nickel,
 uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses
7440-31-5, Tin, uses 7440-32-6, Titanium, uses

7440-36-0, Antimony, uses 7440-50-8, Copper, uses 7440-56-4, Germanium, uses 7782-42-5, Graphite, uses 12023-55-1, Iron silicide (Fe₃Si₇) 12031-95-7, Lithium titanium oxide (Li₄Ti₅O₁₂) 12036-84-9, Tungsten oxide (W₂O₅) 12042-55-6, Aluminum silicide (AlSi) 12334-14-4, **Tin** silicide (SnSi) 18282-10-5, **Tin** dioxide 21651-19-4, **Tin** monoxide 39445-33-5 53095-76-4, Lithium silicide (LiSi) 113443-18-8, Silicon oxide (SiO) 160479-36-7, Lithium **tin** oxide 178958-56-0, Lithium silicon oxide 855472-17-2, Iron silicide (FeSi₁₉) 855472-21-8, Aluminum nickel silicide (Al₉NiSi₁₀) 855472-26-3, Tin titanium silicide (SnTi₁₈Si) 855475-31-9
(**anode** active substance for lithium secondary **batteries**)

L42 ANSWER 2 OF 9 HCA COPYRIGHT 2006 ACS on STN

142:41483 Nonaqueous electrolytic solution containing aromatic compounds and its use in secondary lithium **battery**. Takehara, Masahiro; Shima, Kunihiisa (Mitsubishi Chemical Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2004349131 A2 20041209, 18 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-145311 20030522.

AB The soln. contains Li salts dissolved in nonaq. solvents contg. R₁CR₂HA [R₁, R₂ = (un)substituted alkyl; R₁ and R₂ may be bonded to form (un)substituted hydrocarbon ring; A = substituted Ph; ≥1 of C on m-position to R₁CR₂H in A has substituted group]. The **battery** using the soln. has high charge-discharge efficiency, capacity retention, energy d., and safety in wide temp. region.

IT 7440-31-5D, **Tin**, compds.
(**anode** contg.; nonaq. electrolytic soln. contg. specific benzene derivs. for overcharging prevention in Li **battery**)

RN 7440-31-5 HCA

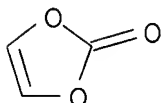
CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IT 872-36-6, Vinylene carbonate
(film former, soln. contg.; nonaq. electrolytic soln. contg. specific benzene derivs. for overcharging prevention in Li **battery**)

RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



- IC ICM H01M010-40
ICS H01M004-02; H01M004-38; H01M004-40; H01M004-58
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST arom compd nonaq electrolytic soln lithium **battery**;
benzene deriv overcharging prevention nonaq **battery** safety
- IT Secondary **batteries**
(lithium; nonaq. electrolytic soln. contg. specific benzene
derivs. for overcharging prevention in Li **battery**)
- IT **Battery** electrolytes
(nonaq. electrolytic soln. contg. specific benzene derivs. for
overcharging prevention in Li **battery**)
- IT 7429-90-5D, Aluminum, compds. 7440-21-3D, Silicon, compds.
7440-31-5D, Tin, compds. 7440-56-4D, Germanium,
compds. 7782-42-5, KS 44, uses
(**anode** contg.; nonaq. electrolytic soln. contg.
specific benzene derivs. for overcharging prevention in Li
battery)
- IT 110-83-8, Cyclohexene, reactions 615-37-2, 1-Iodo-2-methylbenzene
(benzene derivs. from; nonaq. electrolytic soln. contg. specific
benzene derivs. for overcharging prevention in Li **battery**
)
- IT 12190-79-3, Cobalt lithium oxide (LiCoO₂) 12737-30-3, Cobalt
nickel oxide 51845-85-3, Cobalt manganese oxide
(cathode contg.; nonaq. electrolytic soln. contg. specific
benzene derivs. for overcharging prevention in Li **battery**
)
- IT 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium
hexafluorophosphate
(electrolyte; nonaq. electrolytic soln. contg. specific benzene
derivs. for overcharging prevention in Li **battery**)
- IT **872-36-6**, Vinylene carbonate
(film former, soln. contg.; nonaq. electrolytic soln. contg.
specific benzene derivs. for overcharging prevention in Li
battery)
- IT 1717-82-4P, 1-Cyclohexyl-2-fluorobenzene 4501-35-3P 91766-85-7P
(nonaq. electrolytic soln. contg. specific benzene derivs. for
overcharging prevention in Li **battery**)
- IT 803745-27-9
(nonaq. electrolytic soln. contg. specific benzene derivs. for
overcharging prevention in Li **battery**)
- IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate
105-58-8, Diethyl carbonate 108-29-2, γ -Valerolactone
108-32-7, Propylene carbonate 542-28-9, δ -Valerolactone
616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate
4437-85-8, Butylene carbonate
(solvent; nonaq. electrolytic soln. contg. specific benzene
derivs. for overcharging prevention in Li **battery**)

L42 ANSWER 3 OF 9 HCA COPYRIGHT 2006 ACS on STN

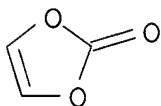
142:41478 Charging-discharging method for secondary nonaqueous electrolyte **battery**. Takesawa, Shuji; Shimamura, Harushige; Oyama, Hideaki; Bito, Yasuhiko (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004349016 A2 20041209, 21 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-142119 20030520.

AB The **battery** having an anode contg. active mass with Li-intercalatable Li_xM phase ($\text{M} = \text{Sn}, \text{Si}$) is charged and discharged to satisfy $x = 0-2.33$ in the phase. Preferably, the **battery** uses nonaq. electrolyte contg. cyclic carbonate, e.g., vinylene carbonate, vinyl ethylene carbonate. The active mass may contain Si-Ti alloy or Sn-Ti alloy phase. The method improves charge-discharge cycle performance of the **battery**.

IT 872-36-6, Vinylene carbonate 4427-96-7, Vinyl ethylene carbonate (electrolytic soln. contg.; charging-discharging method for nonaq. **battery** using Li-intercalatable phase in anode active mass)

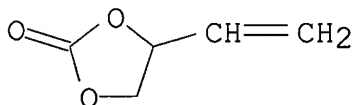
RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



RN 4427-96-7 HCA

CN 1,3-Dioxolan-2-one, 4-ethenyl- (9CI) (CA INDEX NAME)



IC ICM H01M010-44

ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium intercalatable anode phase **battery** charging

discharging; **tin** lithium phase **anode** nonaq

battery; **silicon** lithium phase **anode**

nonaq **battery**

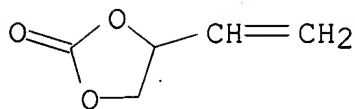
IT **Battery** anodes

(charging-discharging method for nonaq. **battery** using Li-intercalatable phase in anode active mass)

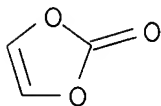
IT Secondary **batteries**

(lithium; charging-discharging method for nonaq. **battery**)

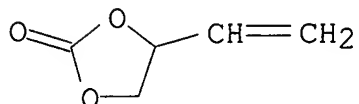
- using Li-intercalatable phase in anode active mass)
- IT 12031-85-5, Lithium silicide (Li_2Si) 51404-25-2 53322-71-7
74969-13-4, Lithium silicide ($\text{Li}_{2.33}\text{Si}$) 110641-52-6, Lithium
silicide ($\text{Li}_{1.71}\text{Si}$) 440124-32-3
(anode phase; charging-discharging method for nonaq.
battery using Li-intercalatable phase in anode active
mass)
- IT **872-36-6**, Vinylene carbonate **4427-96-7**, Vinyl
ethylene carbonate
(electrolytic soln. contg.; charging-discharging method for
nonaq. **battery** using Li-intercalatable phase in anode
active mass)
- IT 7440-21-3, **Silicon**, uses 7440-31-5, **Tin**, uses
(phase, **anode** contg.; charging-discharging method for
nonaq. **battery** using Li-intercalatable phase in anode
active mass)
- IT 12017-12-8P, Cobalt silicide (CoSi_2) 12019-69-1P 12023-01-7P
12039-83-7P, Titanium silicide (TiSi_2) 12166-63-1P 12201-89-7P,
Nickel silicide (NiSi_2) 12509-20-5P
(phase, **anode** contg.; charging-discharging method for nonaq.
battery using Li-intercalatable phase in anode active
mass)
- L42 ANSWER 4 OF 9 HCA COPYRIGHT 2006 ACS on STN
141:159909 Electrolyte additive for a lithium ion **battery** with
tin anode. Jarvis, Christine Ruth (Aea Technology
Battery Systems Limited, UK). PCT Int. Appl. WO 2004070867 A2
20040819, 7 pp. DESIGNATED STATES: W: AE, AE, AG, AL, AL, AM, AM,
AM, AT, AT, AU, AZ, AZ, BA, BB, BG, BG, BR, BR, BW, BY, BY, BZ, BZ,
CA, CH, CN, CN, CO, CO, CR, CR, CU, CU, CZ, CZ, DE, DE, DK, DK, DM,
DZ, EC, EC, EE, EE, EG, ES, ES, FI, FI, GB, GD, GE, GE, GH, GM, HR,
HR, HU, HU, ID, IL, IN, IS, JP, JP, KE, KE, KG, KG, KP, KP, KP, KR,
KR, KZ, KZ, KZ, LC, LK, LR, LS, LS, LT, LU, LV, MA, MD, MD, MG, MK,
MN, MW, MX, MX, MZ, MZ, NA, NI; RW: AT, BE, BF, BJ, CF, CG, CH, CI,
CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE,
NL, PT, SE, SN, TD, TG, BF, BJ, CF, CG, CI, CM, GA, ML, MR, NE, SN,
TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2004-GB153
20040116. PRIORITY: GB 2003-2689 20030206.
- AB The invention concerns an electrolyte for use in a lithium ion cell
that has a **tin anode**, the electrolyte comprising
0.5-20 vol.% vinyl ethylene carbonate. The electrolyte also
comprises ethylene carbonate and propylene carbonate.
- IT **4427-96-7**, Vinyl ethylene carbonate
(electrolyte additive for lithium ion **battery** with
tin anode)
- RN 4427-96-7 HCA
CN 1,3-Dioxolan-2-one, 4-ethenyl- (9CI) (CA INDEX NAME)



- IC ICM H01M010-40
ICS H01M006-16
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST electrolyte additive lithium ion **battery tin anode**
- IT **Battery** anodes
 Battery electrolytes
 (electrolyte additive for lithium ion **battery** with **tin anode**)
- IT Secondary **batteries**
 (lithium; electrolyte additive for lithium ion **battery** with **tin anode**)
- IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate **4427-96-7**, Vinyl ethylene carbonate 7440-31-5, Tin, uses 12190-79-3, Cobalt lithium oxide colio2 21324-40-3, Lithium hexafluorophosphate
 (electrolyte additive for lithium ion **battery** with **tin anode**)
- L42 ANSWER 5 OF 9 HCA COPYRIGHT 2006 ACS on STN
- 141:26166 Secondary **battery**. Kawase, Kenichi; Takada, Tomoo; Miyaki, Yukio (Sony Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2004171877 A2 20040617, 15 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-335055 20021119.
- AB The **battery** has a cathode, an anode, and an electrolyte soln.; where the anode has a collector and an active mass layer alloying with the collector at ≥ 1 part of the interface between the collector and established on the collector; and the electrolyte soln. contains an electrolyte salt and an unsatd. bond contg. cyclic carbonate.
- IT **872-36-6**, Vinylene carbonate **4427-96-7**, Vinyl ethylene carbonate **12645-62-4** **12668-36-9**
 (secondary **batteries** having alloy interfaces in **anodes** and unsatd. bond contg. cyclic carbonates in electrolyte solns.)
- RN 872-36-6 HCA
- CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



RN 4427-96-7 HCA
 CN 1,3-Dioxolan-2-one, 4-ethenyl- (9CI) (CA INDEX NAME)



RN 12645-62-4 HCA
 CN Copper alloy, nonbase, Cu,Si (9CI) (CA INDEX NAME)

Component	Component Registry Number
Cu	7440-50-8
Si	7440-21-3

RN 12668-36-9 HCA
 CN Copper alloy, nonbase, Cu,Sn (9CI) (CA INDEX NAME)

Component	Component Registry Number
Cu	7440-50-8
Sn	7440-31-5

IC ICM H01M010-40
 ICS H01M002-02; H01M004-02; H01M004-38

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary **battery** anode active mass collector alloy
 interface; **battery** electrolyte solvent unsatd bond contg
 cyclic carbonate

IT **Battery** anodes
 Secondary **batteries**
 (secondary **batteries** having alloy interfaces in anodes
 and unsatd. bond contg. cyclic carbonates in electrolyte solns.)

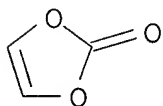
IT 7440-21-3, Silicon, uses
 (amorphous; secondary **batteries** having alloy interfaces
 in anodes and unsatd. bond contg. cyclic carbonates in
 electrolyte solns.)

IT 12190-79-3, Cobalt lithium oxide (CoLiO2)
 (cathode; secondary **batteries** having alloy interfaces
 in anodes and unsatd. bond contg. cyclic carbonates in
 electrolyte solns.)

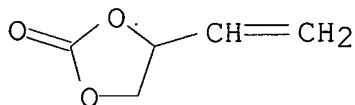
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
 616-38-6, Dimethyl carbonate **872-36-6**, Vinylene carbonate
4427-96-7, Vinyl ethylene carbonate 7440-31-5D, Tin, gold
 plated 7440-50-8, Copper, uses 7782-42-5, Graphite, uses

12645-62-4 12668-36-9 21324-40-3, Lithium hexafluorophosphate
(secondary **batteries** having alloy interfaces in **anodes** and unsatd. bond contg. cyclic carbonates in electrolyte solns.)

L42 ANSWER 6 OF 9 HCA COPYRIGHT 2006 ACS on STN
141:26165 Secondary **battery**. Kawase, Kenichi; Takada, Tomoo; Miyaki, Yukio (Sony Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2004171876 A2 20040617, 17 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-335054 20021119.
AB The **battery** has a cathode, an anode, and an electrolyte soln.; where the anode has a collector and an active mass layer alloying with the collector at ≥ 1 part of the interface between the collector and established on the collector; and the electrolyte soln. contains an electrolyte salt and a cyclic carbonate and/or its deriv(s).
IT **872-36-6**, Vinylene carbonate **4427-96-7**, Vinyl ethylene carbonate **12645-62-4 12668-36-9**
(secondary **batteries** contg. alloy interfaces in **anodes** and cyclic carbonates in electrolyte solns.)
RN 872-36-6 HCA
CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



RN 4427-96-7 HCA
CN 1,3-Dioxolan-2-one, 4-ethenyl- (9CI) (CA INDEX NAME)



RN 12645-62-4 HCA
CN Copper alloy, nonbase, Cu, Si (9CI) (CA INDEX NAME)

Component	Component Registry Number
Cu	7440-50-8
Si	7440-21-3

RN 12668-36-9 HCA
CN Copper alloy, nonbase, Cu, Sn (9CI) (CA INDEX NAME)

Component Component
Registry Number

=====+=====

Cu 7440-50-8
Sn 7440-31-5

IC ICM H01M010-40
ICS H01M002-02; H01M004-02; H01M004-38; H01M004-66
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary **battery** anode active mass collector alloy
interface; **battery** electrolyte solvent cyclic carbonate
deriv
IT **Battery** anodes
Secondary **batteries**
 (secondary **batteries** contg. alloy interfaces in anodes
 and cyclic carbonates in electrolyte solns.)
IT 12190-79-3, Cobalt lithium oxide (CoLiO2)
 (cathode; secondary **batteries** contg. alloy interfaces
 in anodes and cyclic carbonates in electrolyte solns.)
IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate
872-36-6, Vinylene carbonate **4427-96-7**, Vinyl
ethylene carbonate 7440-21-3, Silicon, uses 7440-31-5D, Tin,
gold plated 7440-50-8, Copper, uses **12645-62-4**
12668-36-9 21324-40-3, Lithium hexafluorophosphate
 (secondary **batteries** contg. alloy interfaces in
 anodes and cyclic carbonates in electrolyte solns.)

L42 ANSWER 7 OF 9 HCA COPYRIGHT 2006 ACS on STN

140:29537 Electrolyte solution for secondary lithium **battery**
and the **battery** using the solution. Utsugi, Koji; Mori,
Mitsuhiro (NEC Corporation, Japan). PCT Int. Appl. WO 2003105268 A1
20031218, 31 pp. DESIGNATED STATES: W: CA, CN, KR; RW: AT,
BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE,
TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2003-JP7418
20030611. PRIORITY: JP 2002-170228 20020611.

AB The electrolyte soln. comprises at least imide anions, transition
metal ions and a compd. having a sulfonyl group, in an aprotic
solvent. The **battery** using the electrolyte soln. has long
cycle life and high safety.

IT **68848-64-6**
 (**anode**; electrolyte solns. contg. sulfonyl compds.,
 transition metal ions and imide anions for secondary lithium
 batteries)

RN 68848-64-6 HCA

CN Lithium alloy, nonbase, Li,Si (9CI) (CA INDEX NAME)

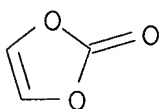
Component Component

	Registry Number
Li	7439-93-2
Si	7440-21-3

IT **872-36-6**, Vinylene carbonate
(electrolyte solns. contg. sulfonyl compds., transition metal
ions and imide anions for secondary lithium **batteries**)

RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



IC ICM H01M010-40

ICS H01M004-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium **battery** electrolyte aprotic solvent;

battery electrolyte imide transition metal sulfonyl compd

IT **Battery** electrolytes

(electrolyte solns. contg. sulfonyl compds., transition metal
ions and imide anions for secondary lithium **batteries**)

IT Secondary **batteries**

(lithium; electrolyte solns. contg. sulfonyl compds., transition
metal ions and imide anions for secondary lithium
batteries)

IT 7440-44-0, Carbon, uses

(amorphous; anode; electrolyte solns. contg. sulfonyl compds.,
transition metal ions and imide anions for secondary lithium
batteries)

IT 7439-93-2, Lithium, uses 7782-42-5, Graphite, uses

68848-64-6

(**anode**; electrolyte solns. contg. sulfonyl compds.,
transition metal ions and imide anions for secondary lithium
batteries)

IT 12057-17-9, Lithium manganese oxide (LiMn₂O₄)

(cathode; electrolyte solns. contg. sulfonyl compds., transition
metal ions and imide anions for secondary lithium
batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate

108-32-7, Propylene carbonate **872-36-6**, Vinylene carbonate

1120-71-4, 1,3-Propane sultone 132843-44-8 259194-36-0

259194-40-6 634598-36-0 634598-37-1

(electrolyte solns. contg. sulfonyl compds., transition metal
ions and imide anions for secondary lithium **batteries**)

L42 ANSWER 8 OF 9 HCA COPYRIGHT 2006 ACS on STN

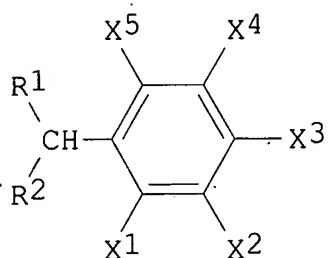
139:367536 Nonaqueous electrolyte lithium secondary **battery**.

Sasaki, Yukio; Takehara, Masahiro; Ue, Makoto (Mitsubishi Chemical Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2003317803 A2

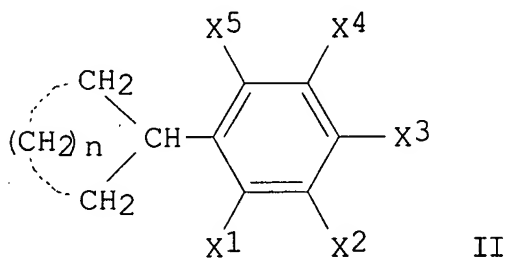
20031107, 12 pp. (Japanese). CODEN: JKXXAF. APPLICATION:

JP 2003-41853 20030219. PRIORITY: JP 2002-43703 20020220.

GI



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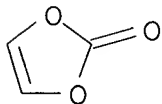
II

AB The **battery** comprises an **anode** contg. Si, **Sn**, Ge, Al, and carbon materials, a **cathode** contg. LiCoO₂, LiNiO₂, and LiMnO₂, and nonaq. electrolyte comprising C3-9 lactones, cyclic carbonates, linear carbonates, linear ethers, and linear carboxylates. The nonaq. electrolyte contains 5-100 mol% of Li salts (e.g. LiBF₄, LiPF₆), 0.1-10 wt.% of F-contg. compds. having formulas of (I) and (II), where X1-X5 are independent H or F, R1 and R2 are alkyl or cycloalkyl, and n is an integer of 2-10. The **battery** has high charging-discharging efficiency and high energy d., and is excellent in elec. capacity and safety in wide temp. range.

IT **872-36-6**, Vinylene carbonate(nonaq. electrolyte lithium secondary **battery**)

RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



IC ICM H01M010-40

ICS C07C025-13; H01M004-02; H01M004-38; H01M004-48; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq electrolyte lithium secondary **battery**IT **Battery** electrolytes(Nonaq.; nonaq. electrolyte lithium secondary **battery**)

IT Carboxylic acids, uses

- (esters; nonaq. electrolyte lithium secondary **battery**)
- IT Secondary **batteries**
(nonaq. electrolyte lithium secondary **battery**)
- IT Carbonates, uses
Ethers, uses
Lactones
(nonaq. electrolyte lithium secondary **battery**)
- IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate
105-58-8, Diethyl carbonate 108-29-2, γ -Valerolactone
108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate
623-53-0, Ethylmethyl carbonate **872-36-6**, Vinylene
carbonate 1717-82-4, 1-Cyclohexyl-2-fluorobenzene 1717-83-5,
1-Cyclohexyl-3-fluorobenzene 1717-84-6, 1-Cyclohexyl-4-
fluorobenzene 4437-85-8, Butylene carbonate 7429-90-5, Aluminum,
uses 7439-93-2, Lithium, uses 7440-21-3, Silicon, uses
7440-31-5, Tin, uses 7440-44-0, Carbon, uses 7440-56-4,
Germanium, uses 12031-65-1, Lithium nickel oxide (LiNiO₂)
12162-79-7, Lithium manganese oxide (LiMnO₂) 14283-07-9, Lithium
tetrafluoro borate 21324-40-3, Lithium hexafluoro phosphate
52627-24-4, Cobalt lithium oxide
(nonaq. electrolyte lithium secondary **battery**)
- L42 ANSWER 9 OF 9 HCA COPYRIGHT 2006 ACS on STN
138:224204 **Battery**. Adachi, Momoe; Fujita, Shigeru; Endo,
Takuya; Iwakoshi, Yasunobu; Shibamoto, Goro (Sony Corporation,
Japan). PCT Int. Appl. WO 2003019713 A1 **20030306**, 162 pp.
DESIGNATED STATES: W: CN, JP, KR, US; RW: AT, BE, CH, CY, DE, DK,
ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (Japanese).
CODEN: PIXXD2. APPLICATION: WO 2002-JP8498 20020823. PRIORITY: JP
2001-254547 20010824.
- AB The **battery** has a cathode, contg. a Li composite oxide
active mass having Li and/or Ni and O, an anode contg. a Li
intercalating material and/or Li in its active mass, and an
electrolyte-impregnated separator in between; where the
battery has charging voltage ≥ 4.25 V, and a total
amt. of Li carbonate and Li sulfate is 1.0 mass % of the cathode
active mass. Preferably, the electrolyte has the concn. of a proton
impurity ≤ 20 ppm and water ≤ 20 ppm.
- IT **12668-36-9**
(**anode**; secondary lithium **batteries** contg.
electrolytes, Li or Li-intercalating **anodes** and Li
composite oxide cathodes with controlled concn. of Li₂CO₃ and
Li₂SO₄)
- RN 12668-36-9 HCA
CN Copper alloy, nonbase, Cu, Sn (9CI) (CA INDEX NAME)

Component Component
Registry Number

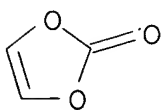
=====+=====

Cu	7440-50-8
Sn	7440-31-5

IT **872-36-6**, Vinylene carbonate **4427-96-7**, Vinyl
ethylene carbonate
(secondary lithium **batteries** contg. electrolytes, Li or
Li-intercalating anodes and Li composite oxide cathodes with
controlled concn. of Li₂CO₃ and Li₂SO₄)

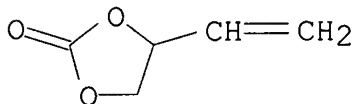
RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



RN 4427-96-7 HCA

CN 1,3-Dioxolan-2-one, 4-ethenyl- (9CI) (CA INDEX NAME)



IC ICM H01M010-40

ICS H01M004-02; H01M004-58; H01M004-40; H01M004-38

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium **battery** structure high charging voltage
energy d

IT Secondary **batteries**
(lithium; secondary lithium **batteries** contg.
electrolytes, Li or Li-intercalating anodes and Li composite
oxide cathodes with controlled concn. of Li₂CO₃ and Li₂SO₄)

IT 7439-93-2, Lithium, uses 7782-42-5, Graphite, uses
12668-36-9
(**anode**; secondary lithium **batteries** contg.
electrolytes, Li or Li-intercalating **anodes** and Li
composite oxide cathodes with controlled concn. of Li₂CO₃ and
Li₂SO₄)

IT 12190-79-3, Cobalt lithium oxide (CoLiO₂)
(cathode; secondary lithium **batteries** contg.
electrolytes, Li or Li-intercalating anodes and Li composite
oxide cathodes with controlled concn. of Li₂CO₃ and Li₂SO₄)

IT 7791-03-9, Lithium perchlorate 14283-07-9, Lithium
tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate
90076-65-6 132843-44-8
(electrolyte; secondary lithium **batteries** contg.

electrolytes, Li or Li-intercalating anodes and Li composite oxide cathodes with controlled concn. of Li_2CO_3 and Li_2SO_4)

IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate
 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate
872-36-6, Vinylene carbonate **4427-96-7**, Vinyl
 ethylene carbonate 12031-65-1, Lithium nickel oxide (LiNiO_2)
 113066-92-5, Cobalt lithium nickel oxide ($\text{Co}_{0.9}\text{LiNi}_{0.1}\text{O}_2$)
 118557-79-2, Cobalt iron lithium oxide ($\text{Co}_{0.9}\text{Fe}_{0.1}\text{LiO}_2$)
 128975-24-6, Lithium manganese nickel oxide ($\text{LiMn}_{0.5}\text{Ni}_{0.5}\text{O}_2$)
 185746-84-3, Aluminum lithium magnesium nickel oxide
 ($\text{Al}_{0.05}\text{LiMg}_{0.05}\text{Ni}_{0.9}\text{O}_2$) 202916-35-6, Chromium cobalt lithium
 nickel oxide ($\text{Cr}_{0.05}\text{Co}_{0.2}\text{LiNi}_{0.75}\text{O}_2$) 287718-97-2, Aluminum lithium
 manganese nickel oxide ($\text{Al}_{0.05}\text{LiMn}_{0.05}\text{Ni}_{0.9}\text{O}_2$) 346417-97-8, Cobalt
 lithium manganese nickel oxide ($\text{Co}_{0.33}\text{LiMn}_{0.33}\text{Ni}_{0.33}\text{O}_2$)
 364589-12-8, Aluminum cobalt lithium titanium oxide
 ($\text{Al}_{0.05}\text{Co}_{0.9}\text{LiTi}_{0.05}\text{O}_2$) 475637-37-7, Aluminum cobalt lithium
 nickel oxide ($\text{Al}_{0.05}\text{Co}_{0.8}\text{LiNi}_{0.15}\text{O}_2$) 478814-69-6, Aluminum cobalt
 lithium magnesium oxide ($\text{Al}_{0.05}\text{Co}_{0.9}\text{LiMg}_{0.05}\text{O}_2$) 500867-92-5,
 Cobalt lithium magnesium manganese oxide ($\text{Co}_{0.8}\text{LiMg}_{0.05}\text{Mn}_{0.15}\text{O}_2$)
 500867-93-6, Aluminum iron lithium nickel oxide
 ($\text{Al}_{0.15}\text{Fe}_{0.05}\text{LiNi}_{0.8}\text{O}_2$) 500867-94-7, Aluminum cobalt lithium
 nickel oxide ($\text{Al}_{0.2}\text{Co}_{0.3}\text{LiNi}_{0.5}\text{O}_2$) 500867-98-1, Cobalt lithium
 magnesium nickel oxide ($\text{Co}_{0.45}\text{LiMg}_{0.05}\text{Ni}_{0.5}\text{O}_2$) 500867-99-2, Cobalt
 lithium nickel titanium oxide ($\text{Co}_{0.35}\text{LiNi}_{0.6}\text{Ti}_{0.05}\text{O}_2$) 500868-00-8,
 Cobalt iron lithium nickel oxide ($\text{Co}_{0.25}\text{Fe}_{0.1}\text{LiNi}_{0.65}\text{O}_2$)
 500868-01-9 500868-02-0 500868-03-1 500868-04-2 500868-05-3
 500868-09-7 500868-10-0 500868-11-1 500868-12-2
 (secondary lithium **batteries** contg. electrolytes, Li or
 Li-intercalating anodes and Li composite oxide cathodes with
 controlled concn. of Li_2CO_3 and Li_2SO_4)

=> D L43 1-7 CBIB ABS HITSTR HITIND

L43 ANSWER 1 OF 7 HCA COPYRIGHT 2006 ACS on STN

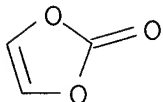
143:81169 Secondary lithium **battery** and its manufacture.

Fukui, Atsushi; Torimae, Mariko; Kusumoto, Yasuyuki; Sayama,
 Katsunobu; Kamino, Maruo (Sanyo Electric Co., Ltd., Japan). Jpn.
 Kokai Tokkyo Koho JP 2005174653 A2 20050630, 18 pp. (Japanese).
 CODEN: JKXXAF. APPLICATION: JP 2003-410592 20031209.

AB The **battery** comprises a cathode, having a cathode mixt.
 layer, which consists of a cathode active mass and a cathode binder
 on a cathode collector; an anode, having an anode active mass layer,
 which consists of a Si or **Si** alloy-contg. **anode**
 active mass and an anode binder, fired and arranged on an anode
 collector, a separator between the 2 electrodes, and a nonaq.
 electrolyte; where in the bent part of the anode mixt. the opposing
 cathode mixt. layer does not exist in order for not having

charge-discharge reaction. The method for manufg. the above **battery** is also disclosed.

- IT **872-36-6**, Vinylene carbonate
(structure and manuf. of secondary lithium **batteries**
for excellent cycle characteristics)
RN 872-36-6 HCA
CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



- IC ICM H01M010-40
ICS H01M004-02; H01M004-04; H01M004-38; H01M004-62; H01M004-66
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary lithium **battery** manuf **anode**
silicon alloy
IT Secondary **batteries**
(structure and manuf. of secondary lithium **batteries**
for excellent cycle characteristics)
IT Fluoropolymers, uses
Polyimides, uses
(structure and manuf. of secondary lithium **batteries**
for excellent cycle characteristics)
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
872-36-6, Vinylene carbonate 7429-90-5, Aluminum, uses
7440-21-3, Silicon, uses 7440-50-8, Copper, uses 12190-79-3,
Cobalt lithium oxide (CoLiO₂) 21324-40-3, Lithium
hexafluorophosphate 24937-79-9, PVDF
(structure and manuf. of secondary lithium **batteries**
for excellent cycle characteristics)
L43 ANSWER 2 OF 7 HCA COPYRIGHT 2006 ACS on STN
142:282858 Nonaqueous electrolyte solution and secondary nonaqueous
electrolyte **battery** and its manufacture. Inamasu, Tokuo;
Nukuta, Toshiyuki (Yuasa Corporation, Japan). Jpn. Kokai Tokkyo
Koho JP 2005063772 A2 20050310, 15 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 2003-290791 20030808.
AB The electrolyte soln. has a S=O bond contg. cyclic org. compd. The
battery has a cathode, an anode, using a Li-intercalating Si
material, and the above electrolyte soln. The **battery** is
manufd. by prepg. an anode by forming a microcrystal Si layer on an
electron conductive material by sputtering.
IT **7440-21-3**, **Silicon**, uses
(**anodes** contg. microcrystal **Si** in manuf. of
secondary lithium **batteries**)
RN 7440-21-3 HCA

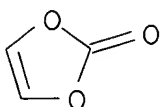
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

IT 872-36-6, Vinylene carbonate
(electrolyte solns. contg. cyclic org. sulfinyl compds. for
secondary lithium **batteries**)

RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



IC ICM H01M010-40

ICS H01M004-02; H01M004-38

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium **battery** electrolyte cyclic org sulfinyl
compd; **anode silicon** secondary lithium
battery manuf

IT **Battery** anodes

(**anodes** contg. microcrystal **Si** in manuf. of
secondary lithium **batteries**)

IT **Battery** electrolytes

(electrolyte solns. contg. cyclic org. sulfinyl compds. for
secondary lithium **batteries**)

IT Secondary **batteries**

(lithium; electrolytes contg. cyclic org. sulfinyl compds. and
anodes contg. microcrystal **Si** for secondary
lithium **batteries**)

IT 7440-21-3, **Silicon**, uses

(**anodes** contg. microcrystal **Si** in manuf. of
secondary lithium **batteries**)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate

872-36-6, Vinylene carbonate 1120-71-4, 1,3-Propane

sultone 21324-40-3, Lithium hexafluorophosphate

(electrolyte solns. contg. cyclic org. sulfinyl compds. for
secondary lithium **batteries**)

IT 12190-79-3, Cobalt lithium oxide (CoLiO₂)

(electrolytes contg. cyclic org. sulfinyl compds. and
anodes contg. microcrystal **Si** for secondary
lithium **batteries**)

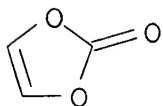
L43 ANSWER 3 OF 7 HCA COPYRIGHT 2006 ACS on STN

142:59739 Secondary lithium **battery** and its manufacture.

Jito, Daizo; Tamura, Noriyuki; Sakitani, Nobuhiro; Minami, Hiroshi;

Yagi, Hiromasa; Kamino, Maruo; Sayama, Katsunobu; Kato, Yoshio; Matsuta, Shigeki (Sanyo Electric Co., Ltd., Japan). PCT Int. Appl. WO 2004109839 A1 20041216, 55 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2004-JP7691 20040603. PRIORITY: JP 2003-163692 20030609; JP 2003-432477 20031226; JP 2004-80919 20040319; JP 2004-132741 20040428.

- AB The **battery** has an anode, contg. an amorphous Si thin film or a Si based amorphous thin film on a collector, a cathode, and a nonaq. electrolyte soln.; where the **battery** has CO₂ dissolved in the electrolyte soln. The **battery** is manufd. by prepg. an anode by depositing an amorphous Si thin film or a Si based amorphous thin film on a collector, dissolving CO₂ in a nonaq. electrolyte soln.; and assembling the **battery** by using the anode, a cathode, and the electrolyte soln.
- IT **872-36-6**, Vinylene carbonate
(manuf. of secondary lithium **batteries** contg. carbon dioxide dissolved electrolyte solns.)
- RN 872-36-6 HCA
- CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



- IC ICM H01M010-40
ICS H01M004-02; H01M004-04; H01M004-38; H01M004-64; H01M004-66
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST secondary lithium **battery** manuf carbon dioxide dissolved electrolyte; **battery anode silicon** based alloy amorphous silicon
- IT Secondary **batteries**
(lithium; manuf. of secondary lithium **batteries** contg. carbon dioxide dissolved electrolyte solns.)
- IT **Battery** electrolytes
(manuf. of secondary lithium **batteries** contg. carbon dioxide dissolved electrolyte solns.)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
872-36-6, Vinylene carbonate 7440-21-3, Silicon, uses
12190-79-3, Cobalt lithium oxide (CoLiO₂) 21324-40-3, Lithium

hexafluorophosphate

(manuf. of secondary lithium **batteries** contg. carbon dioxide dissolved electrolyte solns.)

IT 108-32-7, Propylene carbonate 124-38-9, Carbon dioxide, uses
616-38-6, Dimethyl carbonate 623-53-0, Methyl ethyl carbonate
4437-85-8, Butylene carbonate 7791-03-9, Lithium perchlorate
138096-56-7 246539-14-0 288611-80-3

(manuf. of secondary lithium **batteries** contg. carbon dioxide dissolved electrolyte solns.)

IT 37198-76-8

(microalloyed; manuf. of secondary lithium **batteries** contg. carbon dioxide dissolved electrolyte solns.)

L43 ANSWER 4 OF 7 HCA COPYRIGHT 2006 ACS on STN

141:352775 Secondary lithium **battery**. Yanai, Atsushi;
Yanagida, Katsunori; Kita, Yoshinori; Ikemachi, Takaaki; Noma,
Toshiyuki (Sanyo Electric Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho
JP 2004296181 A2/20041021, 7 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 2003-84871 20030326.

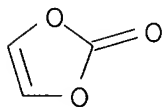
AB The **battery** has an anode active mass contg. anode, a
cathode active mass contg. cathode, and a nonaq. electrolyte soln.,
contg. a γ -butyrolactone based solvent mixt.; where the anode
active mass is a carbonaceous material, contg. ≥ 15 ppm S; and
the electrolyte soln. contains ≤ 4 ppm S.

IT **872-36-6**, Vinylene carbonate

(carbonaceous **anode** active mass and electrolyte solns.
contg. sulfur with controlled amt. for secondary lithium
batteries)

RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



IC ICM H01M010-40

ICS H01M004-02; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium secondary **battery** anode sulfur contg carbonaceous
material

IT **Battery** anodes

(carbonaceous anode active mass and electrolyte solns. contg.
sulfur with controlled amt. for secondary lithium
batteries)

IT Secondary **batteries**

(lithium; carbonaceous anode active mass and electrolyte solns.
contg. sulfur with controlled amt. for secondary lithium

batteries)

IT 96-48-0, γ -Butyrolactone 7440-44-0, Carbon, uses
12190-79-3, Cobalt lithium oxide (CoLiO₂) 14283-07-9, Lithium
tetrafluoroborate

(carbonaceous anode active mass and electrolyte solns. contg.
sulfur with controlled amt. for secondary lithium

batteries)

IT 78-42-2, Trioctyl phosphate **872-36-6**, Vinylene carbonate
7439-89-6, Iron, uses 7440-21-3, **Silicon**, uses
7704-34-9, Sulfur, uses

(carbonaceous **anode** active mass and electrolyte solns.
contg. sulfur with controlled amt. for secondary lithium

batteries)

L43 ANSWER 5 OF 7 HCA COPYRIGHT 2006 ACS on STN

141:263472 Anode for rechargeable lithium **battery** and method
for fabrication thereof. Fukui, Atsushi; Torimae, Mariko; Kusumoto,
Yasayuki; Tarui, Hisaki (Sanyo Electric Co., Ltd., Japan). Eur.
Pat. Appl. EP 1463133 A2, 20040929, 14 pp. DESIGNATED STATES: R:
AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE,
SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK.
(English). CODEN: EPXXDW. APPLICATION: EP 2004-7333 20040326.
PRIORITY: JP 2003-90502 20030328.

AB The invention concerns a neg. electrode for a rechargeable lithium
battery which is obtained by sintering under a non-oxidizing
atm., in the form of a layer on a surface of a metal foil current
collector, an anode mix contg. a binder and particles of active
material contg. silicon and/or a **silicon** alloy; the
neg. electrode being characterized in that the
metal foil current collector has projections and recesses on its
surface, the projection is shaped to have a recurved side face
portion that curves more outwardly as it extends closer to a distal
end of the projection, and the binder penetrates into spaces defined
by the recurved side face portions.

IT **7440-21-3, Silicon**, uses
(**anode** for rechargeable lithium **battery** and
method for fabrication thereof)

RN 7440-21-3 HCA

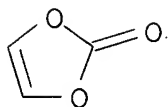
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

IT **872-36-6**, Vinylene carbonate
(**anode** for rechargeable lithium **battery** and method for
fabrication thereof)

RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



- IC ICM H01M004-70
ICS H01M004-64; H01M004-02
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
- ST anode rechargeable lithium **battery**
- IT **Battery** anodes
Surface roughness
(anode for rechargeable lithium **battery** and method for fabrication thereof)
- IT Polyimides, uses
(anode for rechargeable lithium **battery** and method for fabrication thereof)
- IT Secondary **batteries**
(lithium; anode for rechargeable lithium **battery** and method for fabrication thereof)
- IT Electrodeposition
(surface roughening; anode for rechargeable lithium **battery** and method for fabrication thereof)
- IT **Silicon** alloy, base
(anode for rechargeable lithium **battery** and method for fabrication thereof)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 7429-90-5, Aluminum, uses **7440-21-3, Silicon**, uses 7440-50-8, Copper, uses 12190-79-3, Cobalt lithium oxide colio2 21324-40-3, Lithium hexafluorophosphate
(anode for rechargeable lithium **battery** and method for fabrication thereof)
- IT **872-36-6**, Vinylene carbonate
(anode for rechargeable lithium **battery** and method for fabrication thereof)

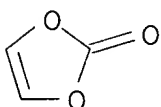
L43 ANSWER 6 OF 7 HCA COPYRIGHT 2006 ACS on STN

140:44753 Anode for lithium secondary **battery**. Fukui, Atsushi; Kusumoto, Yasuyuki; Torimae, Mariko; Nakamura, Hiroshi (Japan). U.S. Pat. Appl. Publ. US 2003235762 A1 **20031225**, 10 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-463438 20030618. PRIORITY: JP 2002-178165 20020619.

AB The invention concerns a neg. electrode for a lithium secondary **battery** obtained by providing an active material layer contg. particles of an active material and a binder on a surface of a current collector which is an elec. conductive metal foil, and sintering the layer under a non-oxidizing atm.; wherein the mean

diam. of the particles of the active material is not smaller than 1 μm and not greater than 10 μm , and the particle size distribution of the particles is such that at least 60 vol.% of the particles are in a range of not smaller than 1 μm and not greater than 10 μm .

IT **872-36-6**, Vinylene carbonate **7440-21-3**,
Silicon, uses
 (anode for lithium secondary **battery**)
 RN 872-36-6 HCA
 CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



RN 7440-21-3 HCA
 CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

IC ICM H01M004-58
 ICS H01M004-62; H01M004-66
 INCL 429231950; 429245000; 429217000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST anode lithium secondary **battery**
 IT **Battery** anodes
 Particle size distribution
 (anode for lithium secondary **battery**)
 IT Fluoropolymers, uses
 Polyimides, uses
 (binder; anode for lithium secondary **battery**)
 IT Secondary **batteries**
 (lithium; anode for lithium secondary **battery**)
 IT **Silicon** alloy, base
 (anode for lithium secondary **battery**)
 IT Copper alloy, base
 (current collector; anode for lithium secondary **battery**)
 IT **872-36-6**, Vinylene carbonate **7440-21-3**,
Silicon, uses 12190-79-3, Cobalt lithium oxide colio2
 (anode for lithium secondary **battery**)
 IT 24937-79-9, PvdF
 (binder; anode for lithium secondary **battery**)
 IT 7440-50-8, Copper, uses
 (current collector; anode for lithium secondary **battery**)
)

IT 7440-22-4, Silver, uses
(powder; anode for lithium secondary **battery**)

L43 ANSWER 7 OF 7 HCA COPYRIGHT 2006 ACS on STN

135:245039 Secondary nonaqueous electrolyte **batteries**.

Takami, Norio (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP

2001266938 A2 **20010928**, 6 pp. (Japanese). CODEN: JKXXAF.

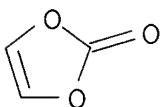
APPLICATION: JP 2000-72399 20000315.

AB The **batteries** use a nonaq. electrolyte soln. contg. org.
Si compd. additives having Si-O or Si-C bonding. The electrolyte
solns. may also contain vinylene carbonate. Another type of the
batteries use anodes of a Li intercalating carbonaceous
material having Si-O, Si-O-C, Si-C, Si-H, and/or Si-F bondings on
its surface.

IT **872-36-6**, Vinylene carbonate
(electrolyte solns. contg. org. silicon compd. additives for
secondary lithium **batteries**)

RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium **battery** electrolyte silicon compd
additive; carbonaceous **anode silicon** compd
modification lithium **battery**

IT **Battery** anodes
(anodes from carbonaceous materials with silicon compd. modified
surface for secondary lithium **batteries**)

IT Carbon fibers, uses
(anodes from carbonaceous materials with silicon compd. modified
surface for secondary lithium **batteries**)

IT **Battery** electrolytes
(electrolyte solns. contg. org. silicon compd. additives for
secondary lithium **batteries**)

IT Secondary **batteries**
(lithium; secondary lithium **batteries** with silicon
compd. modified carbonaceous **anodes** and **silicon**
compd. contg. electrolyte solns.)

IT 7440-21-3D, **Silicon**, compds., uses
(**anodes** from carbonaceous materials with silicon compd.
modified surface for secondary lithium **batteries**)

IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate
14283-07-9, Lithium fluoroborate

(electrolyte solns. contg. org. silicon compd. additives for
secondary lithium **batteries**)

IT 78-10-4, Tetraethoxysilane 681-84-5, Tetramethoxysilane

872-36-6, Vinylene carbonate

(electrolyte solns. contg. org. silicon compd. additives for
secondary lithium **batteries**)